



UNITED STATES DEPARTMENT OF COMMERCE  
Patent and Trademark Office

**NOTICE OF ALLOWANCE AND ISSUE FEE DUE**

QM12/0725

SCHWEGMAN LUNDBERG WOESSNER  
AND KLUTH  
P O BOX 2938  
MINNEAPOLIS MN 55402

APPLICATION NO.	FILING DATE	TOTAL CLAIMS	EXAMINER AND GROUP ART UNIT	DATE MAILED
09/045,018	03/20/98	020	NATNITHITHADHA, N	3736 07/25/00
First Named Applicant	CHESNEY, CHARLES F.			

TITLE OF INVENTION SENSOR AND METHOD FOR SENSING ARTERIAL PULSE PRESSURE

ATTY'S DOCKET NO.	CLASS-SUBCLASS	BATCH NO.	APPLN. TYPE	SMALL ENTITY	FEE DUE	DATE DUE
3	120.010US1	600-586.000	P72 UTILITY	YES	\$605.00	10/25/00

**THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED.**

**THE ISSUE FEE MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED.**

**HOW TO RESPOND TO THIS NOTICE:**

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is changed, pay twice the amount of the FEE DUE shown above and notify the Patent and Trademark Office of the change in status, or

B. If the status is the same, pay the FEE DUE shown above.

If the SMALL ENTITY is shown as NO:

A. Pay FEE DUE shown above, or

B. File verified statement of Small Entity Status before, or with, payment of 1/2 the FEE DUE shown above.

II. Part B-Issue Fee Transmittal should be completed and returned to the Patent and Trademark Office (PTO) with your ISSUE FEE. Even if the ISSUE FEE has already been paid by charge to deposit account, Part B Issue Fee Transmittal should be completed and returned. If you are charging the ISSUE FEE to your deposit account, section "4b" of Part B-Issue Fee Transmittal should be completed and an extra copy of the form should be submitted.

III. All communications regarding this application must give application number and batch number.

Please direct all communications prior to issuance to Box-ISSUE FEE unless advised to the contrary.

**IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.**

**PATENT AND TRADEMARK OFFICE COPY**

# Notice of Allowability

Application No.  
09/045,018

Applicant(s)  
Chesney et al

Examiner  
Navin Natnithithadha

Group Art Unit  
3736



All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance and Issue Fee Due or other appropriate communication will be mailed in due course.

☒ This communication is responsive to April 3, 2000

☒ The allowed claim(s) is/are 1-20

☒ The drawings filed on Feb 22, 2000 are acceptable.

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some\* ☐ None of the CERTIFIED copies of the priority documents have been

☐ received.

☐ received in Application No. (Series Code/Serial Number) \_\_\_\_\_

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\*Certified copies not received: \_\_\_\_\_

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

A SHORTENED STATUTORY PERIOD FOR RESPONSE to comply with the requirements noted below is set to EXPIRE **THREE MONTHS** FROM THE "DATE MAILED" of this Office action. Failure to timely comply will result in ABANDONMENT of this application. Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

☐ Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL APPLICATION, PTO-152, which discloses that the oath or declaration is deficient. A SUBSTITUTE OATH OR DECLARATION IS REQUIRED.

☐ Applicant MUST submit NEW FORMAL DRAWINGS

☐ because the originally filed drawings were declared by applicant to be informal.

☐ including changes required by the Notice of Draftsperson's Patent Drawing Review, PTO-948, attached hereto or to Paper No. \_\_\_\_\_

☐ including changes required by the proposed drawing correction filed on \_\_\_\_\_, which has been approved by the examiner.

☐ including changes required by the attached Examiner's Amendment/Comment.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the reverse side of the drawings. The drawings should be filed as a separate paper with a transmittal letter addressed to the Official Draftsperson.

☐ Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Any response to this letter should include, in the upper right hand corner, the APPLICATION NUMBER (SERIES CODE/SERIAL NUMBER). If applicant has received a Notice of Allowance and Issue Fee Due, the ISSUE BATCH NUMBER and DATE of the NOTICE OF ALLOWANCE should also be included.

## Attachment(s)

☐ Notice of References Cited, PTO-892

☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). 15

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

☐ Interview Summary, PTO-413

☐ Examiner's Amendment/Comment

☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material

☐ Examiner's Statement of Reasons for Allowance

Art Unit: 3736

### **EXAMINER'S REASONS FOR ALLOWANCE**

1. The following is an examiner's statement of reasons for allowance:

None of the prior art of record, alone or in combination, teaches a body-sound sensor (claims 1, 5, 6, 8) comprising: a housing; a skin-contact diaphragm attached across a recess or opening in the housing, a piezoelectric device having a first portion mounted in a fixed relationship to the housing and a second portion displacementally coupled to the diaphragm; and a solid-state amplifier together have a frequency response at least including a range from below approximately 1 hertz to above approximately 250 hertz.

None of the prior art of record, alone or in combination, teaches a piezoelectric acoustical pressure sensor (claims 11 and 12) including: a stainless-steel housing the housing having a skin-contact diaphragm, the diaphragm having a skin-contact surface with a skin-contact dimension of between approximately 0.3 inch and 0.7 inch; a piezoelectric device displacementally coupled to the diaphragm; a solid-state amplifier within the housing having a signal input coupled to the device, the device and amplifier together having a frequency response of approximately 0.1 hertz to at least approximately 250 hertz.

None of the prior art of record, alone or in combination, teaches a method (claims 13 and 17-20) for sensing body sounds comprising the steps of: displacing a skin-contact diaphragm using changing pressure at a skin surface to create a diaphragm displacement; converting the diaphragm displacement into a piezoelectric displacement; generating an electrical signal representative of the piezoelectric displacement; and amplifying the electrical signal, wherein the

Art Unit: 3736

steps of displacing, converting, and amplifying together have a frequency response at least including a range from below approximately 1 hertz to above approximately 250 hertz.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### **CONCLUSION**

2. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Emr. Navin Natnithithadha, whose telephone number is (703) 305-2445.

The examiner can normally be reached on M-TH from 8:00 a.m. to 5:00 p.m. EST.

If attempts to reach the examiner by phone fail, the examiner's supervisor, Cary E. O'Connor, can be reached at (703) 308-2701. Additionally, the fax phone for Art Unit 3736 is (703) 308-0758. When filing a fax in Group 3700, please indicate in the Header (upper right) "Official" for papers that are to be entered into the file, and "Unofficial" for draft documents and other communication with the PTO that are not for entry into the file of the application. This will expedite processing of your papers. All faxes not clearly marked will be considered "Official" faxes.

Application/Control Number: 09/045,018

Page 4

Art Unit: 3736

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist at (703) 308-0858.

Navin Natnithithadha  
Patent Examiner  
Art Unit 3736  
June 30, 2000

*Cary O'Connor*  
CARY O'CONNOR  
SUPERVISORY PATENT EXAMINER  
GROUP 3700